



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/617,086	07/14/2000	Masahiro Tsujishita	649-753P	5579

2292 7590 03/07/2005

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

LAO, LUN S

ART UNIT	PAPER NUMBER
----------	--------------

2643

DATE MAILED: 03/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/617,086

Applicant(s)

TSUJISHITA ET AL.

Examiner

Lun-See Lao

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This is response to the preliminary amendment filed on 12-04-2000. Claims 1-11 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The driven" a second corrector outputting the correction signal for correcting the noise according to at least one of the values of the demodulated audio signals which a respectively smoothed before and after the generation period of the noise which is detected by said noise detector" (see specification page 6 lines2-11 and page 13 line 11- page 14 line17) was not supported in the further detail in specification nor in any of the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2643

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 8 and 10-11 rejected under 35 U.S.C. 102(b) as being anticipated by Hirohashi (US PAT. 4,574,390).

Consider claim 8 Hirohashi teaches a noise removal apparatus comprising:
a noise detector (see fig.1, 8) detecting the noise included in a demodulation signal having the information corresponding to audio signals of a plurality of channels from the demodulation signals (col.4 line 16-25),

an audio signal demodulate (12) demodulating and outputting the audio signals corresponding to each of the plurality of channels (such as left and right) from the information corresponding to the audio signals included in the demodulation signals (see col.4 lines 5-15), and

a corrector (12, sample-and –hold circuit) independently correcting each audio signal outputted from said audio signal demodulation means according to the output of said noise detector (12, see col.6 line 26-47 and col.2 line 48-57 and col.3 line 12-22).

Consider claims 10-11 Hirohashi teaches the noise removal apparatus according to the output of said noise detector (see fig.1, 7), a generation condition of the noise is detected, and corresponding to the detected result, the detection sensitivity of said noise detector is controlled (see col.4 lines 16-47); and an audio output apparatus comprising said noise removal apparatus (see fig.1 and abstract).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirohashi (US PAT. 4,574,390) in view of Nakamura (EP 477460).

Consider claim 1, Hirohashi teaches a noise reduction apparatus comprising:

a noise detector (see fig.1.7) detecting a noise included in a demodulated audio signal;

a first corrector (12) outputting a correction signal for correcting the noise according to a signal value existing just before and just after a predetermine period (see fig.2) including a generation time point of the noise in the demodulated audio signal which is detected by said noise detector (see col.2 line 48-57 and col.3 line 12-22);

a second corrector (32) outputting the correction signal for correcting the noise according to at least one of the values of the demodulated audio signals which are respectively smoothed before and after the generation period of the noise which is detected by said noise detector (see col.6 line 26-47), but Hirohashi does not clearly teach a high band level detector detecting the level of a high band component of the audio signal, and a selector selecting either one of said first or said second correctors according to the output of said high band level detection means.

Art Unit: 2643

However, Nakamura teaches a high band level detector (see fig.1, 5) detecting the level of a high band component of the audio signal, and a selector (3) selecting either one of said first (2, amplifier) or said second (9-11) correctors according to the output of said high band level detection means (5 and see col.2 line 41-col.3 line 35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Nakamura in to Hirohashi to provide a noise suppressing circuit in a FM tune having a gate for controlling a composite signal applied to a stereo demodulator of the FM tuner.

Consider claims 4-5, Nakamura teaches the noise removal apparatus according to further comprising:

a level detector (see fig.1, 5) the whole band level in the demodulated audio signal, wherein said selector is operated according to a relationship between a ratio of the level output of said high band level detector to the level output of said level detector, and a predetermined value (see col.2 line 47-col.3 line 25); and the noise removal apparatus according the detection sensitivity of said noise detector (see fig.1, 9) is changeable corresponding to the output level of said high band level detector (5 and see col.2 line 47-col.3 line 25).

Consider claim 7 Hirohashi teaches an audio output apparatus comprising said noise removal apparatus (see fig.1 and abstract).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirohashi (US PAT. 4,574,390) in view of Bommer (US PAT. 6,233,443).

Consider claim 9 Hirohashi teaches the noise removal apparatus (see fig.1) according to said noise detector (7) conducts the noise detection, but Hirohashi does not clearly teach the noise detection such that, for each predetermined period which alternates among a plurality of channels, a portion of the period respectively overlaps with each other.

However, Brommer teaches the noise detection(see fig.1, 9) such that, for each predetermined period which alternates among a plurality of channels, a portion of the period respectively overlaps with each other (see col.1 line 39-59 and col.2 line 34-col.3 line50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Brommer in to the teaching of Hirohashi to provide an apparatus for the separation and demodulation of such signal would benefit from the ability to adjust to this temporal variation.

9. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirohashi (US PAT. 4,574,390) as modified by Nakamura (EP 477460) as applied to claim 1 above, and further in view of Brommer (US PAT. 6,233,43).

Consider claims 2-3, Hirohashi and Nakamura do not clearly teach the noise removal apparatus according to said first corrector outputs a low pass filter output of a signal value obtained from a linear interpolation of 2 signal values existing just before and just after a predetermined period including a generation time point of the noise, as a correction signal; and the noise removal apparatus according to said second corrector

Art Unit: 2643

outputs a low pass filter output of the signal value obtained from the linear interpolation of 2 average signal values obtained by averaging a plurality of signal values existing before and after a predetermined period including the generation time point of the noise, corresponding to each of before and after the generation of the noise, as a correction signal.

However, Brommer teaches the noise removal apparatus according to said first corrector outputs a low pass filter (24a) output of a signal value obtained from a linear interpolation of 2 signal values existing just before and just after (by 40a and see col.4 line 44-col.5 line 12) a predetermined period including a generation time point of the noise, as a correction signal (see col.3 line 1-28); and the noise removal apparatus according to said second corrector outputs a low pass filter (24b) output of the signal value obtained from the linear interpolation of 2 average signal values obtained by averaging a plurality of signal values existing before and after (by 40b and see col.4 line 44-col.5 line 12) a predetermined period including the generation time point of the noise, corresponding to each of before and after the generation of the noise, as a correction signal (see col.3 lines 1-28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Brommer in to the teaching of Hirohashi as in view by Nakamura to provide an apparatus for the separation and demodulation of such signal would benefit from the ability to adjust to this temporal variation.

Art Unit: 2643

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirohashi (US PAT. 4,574,390) as modified by Nakamura (EP 477460) as applied to claim 1 above, and further in view of Mankovitz (US PAT. 5,134,719).

Consider claim 6 Hirohashi and Nakamura do not clearly teach the noise removal apparatus in said selector is operated according to the level of an addition signal and the level of a subtraction signal between the right channel signal and the left channel signal constituting the audio signal.

However, Mankovitz teaches the noise removal apparatus in said selector (see fig.4 , 82) is operated according to the level of an addition signal and the level of a subtraction signal between the right channel signal and the left channel signal constituting the audio signal (such as I+r and I-r and see col.9 line 32-col.10 line 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Mankovitz in to the teaching of Hirohashi as in view by Nakamura to provide a system for transmitting the auxiliary data is also disclosed where the musical selections and auxiliary data are transmitting as part of an FM stereophonic broadcast system in which a main carrier is transmitted at an assigned broadcast station frequency.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nohara (US PAT.5, 812,673) and Kane (US PAT. 5,982,901)